



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/816,112

03/31/2004

Jeremy P. Duke

42P19128

8560

8791

7590

01/08/2008

BLAKELY SOKOLOFF TAYLOR & ZAFMAN
1279 OAKMEAD PARKWAY
SUNNYVALE, CA 94085-4040

EXAMINER

LEE, KWOK W

ART UNIT

PAPER NUMBER

4113

MAIL DATE

DELIVERY MODE

01/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/816,112	Applicant(s) DUKE, JEREMY P.	
	Examiner KWOK W. LEE	Art Unit 4113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-9 recite abstract ideas or algorithms that are not tied to any specific apparatus that is statutory on its own nor do they transform one material into a different material or form (*In re Comiskey*, 499 F.3d 1365 [84 USPQ2d 1670] (Fed Cir. 2007)). Therefore, claims 1-9 are directed to non-statutory subject matter.

Claims 10-18 are system claims where the system cannot be construed to be of any physical objects. The system is composed of modules and optimizers which are software. Software per se, is non-statutory subject matter because it is not a "process, machine, manufacture or composition of matter".

Claims 19-30 claims a machine-accessible medium. However, in the applicant's specification on page 12, paragraph [0033], a machine-accessible medium includes carrier wave signals. Carrier wave signals are directed to non-statutory subject matter because they are not a "process, machine, manufacture or composition of matter".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-14, 16-19, 23-26 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Bollella et al. (US 2002/0138542).

With respect to claim 1, Bollella teaches a method for performing thread scheduling, the method comprising: receiving thread objective data including a performance objective (Paragraph [0020], where the deadline is the objective); sampling performance metric data points (Paragraph [0040]), wherein each data point varies as a function of scheduling quantum values (Paragraph [0040], lines 6-10, cost is defined as a scheduling quantum in paragraph [0004], lines 9-11); calculating a new scheduling quantum value by processing the performance metric data points according to the performance objective (Paragraph [0042]); and adjusting a current scheduling quantum value to the new scheduling quantum value (Paragraph [0043], lines 1-9).

With respect to claim 2, Bollella teaches wherein sampling the performance metric data points includes sampling a performance metric value at predetermined scheduling quantum values (Paragraph [0040], lines 6-10).

With respect to claim 3, Bollella teaches including using a sliding window to define a set of sampled performance metric data points during real-time sampling (Paragraph [0040], lines 6-10), and calculating the new scheduling quantum value

includes using the defined set of sampled performance metric data points (Paragraph [0040]).

With respect to claim 4, Bollella teaches wherein the performance objective is to determine the new scheduling quantum value corresponding to a minimum of the set of sampled performance metric data points (Paragraph [0042], lines 5-10).

With respect to claim 5, Bollella teaches wherein the performance objective is to determine the new scheduling quantum value corresponding to a maximum of the set of sampled performance metric data points (Paragraph [0043]).

With respect to claim 7, see above discussion regarding claim 1. Paragraph [0018] discusses thread objective data, sampling, determining, calculating and adjusting of the scheduling for each of a plurality of threads.

With respect to claim 8, Bollella teaches wherein the processing the performance metric data points for each thread according to the new performance objective includes combining each function corresponding to each thread's performance metric data points to produce a new performance metric function (Paragraph [0043], lines 1-14).

With respect to claim 9, Bollella teaches wherein determining the new performance objective includes choosing a performance objective corresponding to a thread with a highest priority among the plurality of threads (Paragraph [0005] and paragraph [0006]).

With respect to claim 10 and 19, see above discussion regarding claim 1.

With respect to claim 11 and 23, see above discussion regarding claim 2.

With respect to claim 12 and 24, see above discussion regarding claim 3.

With respect to claim 13 and 25, see above discussion regarding claim 4.

With respect to claim 14 and 26, see above discussion regarding claim 5.

With respect to claim 16 and 28, see above discussion regarding claim 7.

With respect to claim 17 and 29, see above discussion regarding claim 8.

With respect to claim 18 and 30, see above discussion regarding claim 9.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 15, 20-22, 27 and 31-36 rejected under 35 U.S.C. 103(a) as being unpatentable over Bollella et al. (US 2002/0138542) in view of well-known practices in the art.

With respect to claim 6, 15, and 27 all of the limitations of claims 1, 3, 10, 12 and 19 have been addressed above. Bollella does not teach wherein the performance objective is to determine the new scheduling quantum value corresponding to an average of the set of sampled performance metric data points. However, it would have been within the province of one of ordinary skill in the art to have determined a new scheduling quantum value corresponding to an average of the set of sampled performance metric data points. It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter

pertains to have calculated a new cost extension value in Bollella to of an average number between zero and the largest value of system feasibility, as a compromise to yield more processing time for an unfinished task and allowing for a better indication of performance due to varying workloads over time.

With respect to claim 20, all of the limitations of claim 19 have been addressed above. Bollella teaches a method for improving scheduling of tasks in systems, mainly in real-time operating systems. Bollella does not expressly teach wherein the instructions for executing the method to perform thread scheduling are coded into an operating system. However, it was well-known that operating systems handle scheduling of tasks. It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have improved the scheduling of tasks in an operating system by coding the improved method into an operating system so that it can better handle real-time tasks.

With respect to claim 21, all of the limitations of claim 19 have been addressed above. Bollella does not teach wherein the instructions for executing the method to perform thread scheduling are coded into a high level application. It was well-known in the art that high level applications were easier to develop and more portable across platforms. It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have written the task scheduling method of Bollella in a high level application because it is easier to write and to transport across platforms than a low level application as well as providing scheduling benefits to operating systems that do not manage task scheduling.

With respect to claim 22, all of the limitations of claim 19 and 21 have been addressed above. Bollella does not teach wherein the high level application is layered above an operating system as a system service. It would have been within the province of one of ordinary skill in the art to have implemented a scheduling method as either within the operating system or as a software layer above an operating system as a system service. It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have implemented the improved scheduling method of Bollella as a high level application layered above an operating system as a system service since the improvement was aimed at extending processing time of the default scheduling of an operating system.

With respect to claim 31, Bollella teaches a portable media device, comprising; a memory module (Memory 14, see figure 1) to store data; a processor (CPU 12, see figure 1) to perform various functions as addressed above for claim 1. Bollella does explicitly not teach one of a battery and fuel cell to power the portable media device, including the processor and memory. However, it was a well-known way of powering a portable media device, in this case a notebook computer 10 as shown in figure 2, by a battery or fuel cell. It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to which said subject matter pertains to have powered the notebook computer used by Bollella, by a battery or fuel cell in order to provide a power source to the computer while maintaining mobility.

With respect to claim 32 and 35 see above discussion regarding claim 3.

With respect to claim 33, see above discussion regarding claim 4.

With respect to claim 34, see above discussion regarding claim 7 and 31.

With respect to claim 36, see above discussion regarding claim 9.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Shan et al. (US 5,325,525) reference shows revised scheduling of subtasks against resources in order to minimize an execution time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KWOK W. LEE whose telephone number is (571)270-3557. The examiner can normally be reached on Mon - Thu and alternate Fridays 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Robertson can be reached on (571) 272-4186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. W. L./
Examiner, Art Unit 4113

/David L Robertson/
Supervisory Patent Examiner, Art
Unit 4113